Curriculum Vitae of

Pramod K. Srivastava

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Name:

Pramod Kumar SRIVASTAVA

Date of Birth:

August 16, 1955

Nationality:

Permanent Resident of USA

Social Security #:

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Home address:

70 Pheasant Run

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#### **Education:**

1973, B Sc (Zoology, Botany and Chemistry), Allahabad Univ, Allahabad, India, High Second div.;

1975, M Sc (Botany, with specialization in Palaentology, Advisor: Professor Divya Darshan Pant), Allahabad University, Allahabad, India, First Division with First Rank;

1979, Post-Graduate Diploma (Microbiology & Biotechnology; specialization in yeast genetics, Advisor: Professor Yasuji Oshima), Osaka University, Osaka, Japan;

1984, Ph D (Biochemistry with specialization in tumor immunology, Advisor : Dr. M. Ramchandra Das), Osmania Univ. (Centre for Cellular & Molecular Biology), Hyderabad, India.

2006, MD, University of Connecticut, Farmington, CT

## Postdoctoral Training:

Postdoctoral Fellow, Yale University, New Haven, Connecticut, 1982-1983, Advisor: Professor Alan Garen

Research Fellow, Sloan-Kettering Institute for Cancer Research, New York, 1984-85, Advisor: Professor Lloyd J. Old

# **Positions and Appointments:**

Scientist 'C', Center for Cellular & Molecular Biology (CSIR),	06.83 - 02.84
Hyderabad, India	
Research Associate, Sloan-Kettering Institute for Cancer Research,	01.86 - 10.88
Immunology Program, New York	
Assistant Professor, Department of Pharmacology, Mount Sinai School,	11.88 - 08.93
of Medicine, New York. Also appointed in the Dept of Microbiology	
Associate Professor of Immunology, Dept of Biological Sciences,	09.93- 01.96
Fordham University, Bronx, NY.	
Professor of Immunology, Department of Biological Sciences, Fordham,	02.96 - 12.96
University, Bronx, NY.	
Professor of Immunology, Physicians Health Service Chair in	01.97 - now
Cancer Immunology, and Director, Center for Immunotherapy of	
Cancer and Infectious Diseases, University of Connecticut,	
School of Medicine, Farmington, CT.	
Director, Cancer Signature Program	01.01 - now
University of Connecticut, School of Medicine, Farmington, CT.	

## **Editorial Positions:**

Editorial Board, *Tissue Antigens*, 2001 – Section Editor, Inflammation and Immunity Section, *Cell Stress and Chaperones*, 2000 – Editorial Board, *Cellular Immunology*, 2000 – 2004 Editor, *Cancer Immunity*, 2000 –

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### Membership of Study Sections and Advisory Councils:

Experimental Immunology study section, NIH, 1994 - 1998;

Scientific Advisory Council, Cancer Research Institute, New York, and Member, Fellowships Committee of the CRI, 1996 - present;

Chairman, Scientific Advisory Board, and member, Board of Directors, Antigenics, LLC., New York, 1995 - present;

Member, Scientific Advisory Board, and member, Board of Directors, Ikonisys Inc., New Haven, 1998 - present;

Howard Hughes Medical Institute Student Fellowships Review Panel, 1999 - 2001;

Member, Steering Committee for Stress Biology, Int'l Union of Biological Science, 2001 – present;

Biotech Advisory Committee, CT Innovations, Rocky Hill, CT, 2001 - present.

## **Present Grant Support:**

NIH/NCI 7/1/00-6/30/03

5R01CA84479-02 \$562,792

Receptor for gp96 on Macrophages and

**Dendritic Cells** 

Antigenics, L.L.C. 2/12/98-11/15/03

Use of Heat Shock Proteins for the \$4,920,641

Development of Therapeutic and Prophylactic

**Vaccines** 

Lea's Foundation for Leukemia Research 9/1/99-12/31/02

Treatment of indolent B-cell lymphoma and CLL \$55,000

patients with heat shock protein 70 (HSP70)

complexed to autologous tumor proteins or to tumor-specific proteins

The Charles Dana Foundation 12/01/01-11/30/05

Harnessing CD91 ligands for rapid treatments of \$500,000

Infections of unknown antigenicity

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## Peer Reviewed Past Grant Support (selected list):

NIH 5RO1-CA44786-09 9/1/87-8/31/97

Heat Shock Proteins as Tumor Antigens \$755,421

NIH 7RO1-CA64394-04 9/1/97-4/30/99

Use of HSP70-Peptide Complexes in \$121,443 per year

Specific Immunity

Cancer Research Institute 7/1/89-6/30/93

Investigator Award \$50,000 per year

DARPA (US Army)

BAA96024 (Srivastava) 4/9/97-4/8/00

Heat Shock Protein–Peptide Complexes \$1,540,109

As Antiviral Agents

CAP CURE 1/1/98-12/31/98

Heat Shock Protein Based Prostate Cancer \$100,000

Vaccine Starting from Single Cell or Small Biopsies

NIH 5 P50 CA62924-06 01/01/99-12/31/01

John Hopkins Oncology Center \$28,356

Influence of Random Mutations on the

**Antigenicity of Colorectal Tumors** 

### **Teaching Experience:**

Teach part of MD/PhD immunology course, Univ. of Connecticut, Farmington, CT, 2002 Teach part of graduate vaccine course at the Univ. of Connecticut, Storrs, CT, April , 2001

Teach part of graduate immunology course (Tumor immunology) at Univ. of Connecticut.

Teach part of Advanced Immunology Course at University of Connecticut.

Taught Summer Undergraduate Intern Program at University of Connecticut, May 1999.

Taught complete graduate and undergraduate immunology courses at Fordham Univ., 1993 - 96.

## Teaching Experience (continued):

- Part of a graduate course in Biochemical Pharmacology (development of vaccines) (at Mount Sinai), 1988-93.
- Part of an Advanced graduate immunology Course (tumor immunology) (at Mount Sinai), 1992-93.
- Medical students lectures on Cancer Chemotherapy and Cancer Immunology (at Mount Sinai), 1992-93.

## Training Experience (graduate students, post-doctoral fellows etc.):

- Thesis advisor to PhD students. Two MD PhD students Robert G Maki and Zihai Li, five straight PhD students: Daniel Levey, Nathalie Blachere, Sreyashi Basu, Robert Binder, and Ping Peng completed their PhD thesis in my laboratory between 1990 and now. Four PhD students Marissa Caudill, Joseph Kovalchin, Guruprasaadh Muralimohan, and Arpana Srinivasan are presently working towards their dissertations.
- Seven post-doctoral fellows (Sreyashi Basu, Robert Binder, Oyvind Halaas, Toyoshi Matsutake, Shin Oshima, Ruibo Wang, and Siqing Wang,) presently work in my laboratory.
- Eighteen postdoctoral fellows (Anne Altmeyer, Kirstin Anderson, Rajiv Chandawarkar, Anna Feldweg, Michael Heike, Navdeep Jaikaria, Sylvia Janetzki, Stephanie Kespohl, Sumeet Kumar, Kristi McQuade, Clyde Mendonca, Antoine Ménoret, Dirk Schadendorf, Ryuichiro Suto, Yasuaki Tamura, Heiichiro Udono, Mihir Wagh, and Gunner Weidt) have worked in my laboratory between 1988 and now.
- Four of my students/trainees (Zihai Li, Antoine Ménoret, Dirk Schadendorf, and Heichiro Udono) have gone on to establish independent laboratories.
- Two students, Michael Schneider (1992) and Steven McCoy (1993), worked towards a Westinghouse project and finished as semi-finalists.
- A large number of medical students and Sigma Xi summer students have rotated through my laboratory.

#### **Administrative Experience:**

At University of Connecticut School of Medicine:

Director, Center for Immunotherapy of Cancer and Infectious Diseases,

Director, University of Connecticut Cancer Center

Member, Institutional Animal Care and Use Advisor Committee,

1/1/97- now
3/1/99-now

## Administrative Experience (continued):

Member, Steering Committee, UConn General Clinical Research Ctr 12/1/98-11/30/99 Various Search Committees

At Fordham University. Served as member of: Institutional Animal Care and Use Committee Radiation Safety Committee

At Mount Sinai School of Medicine: Served as member of:
Institutional Committee on Special Grants and Fellowships, 1990–1993;
Institutional Advisory Committee to Center for Laboratory Animal Sciences, 1989–93;
Cancer and Generic Lab Committees of Institute for Human Genomic Studies, 1992;
Departmental Graduate Teaching and Safety & Services Committees, 1988–1993;
Director of the Departmental seminar program, 1992–3.

#### **Honors and Awards:**

Merit Scholar, Government of India, 1969
Indian Council of Agricultural Research Award in Plant Physiology, 1973
Gold Medal from University of Allahbad, 1975
UNESCO International Studentship in Microbiology, 1978–1979
Senior Fellowship of Indian Council of Scientific and Industrial Research, 1980
John Hans and Edna Alice Old Postdoctoral Fellowship, Cancer Research Institute, NY 1984–1986

First Independent Research Support and Transition Award of NIH, 1987 Irma T. Hirshl Award, 1989

Investigator Award of Cancer Research Institute, New York, 1989.

Mildred Scheel Lecturer at the International Conference on "Hyperthermia in Clinical Oncology", Munich, Germany, 1993

Listed in the International Directory of Distinguished Leadership, American Biographical Inst., 1994

Member, Experimental Immunology study section, NIH, 1994 - 1999.

Member, Scientific Advisory Council, Cancer Research Institute, New York, and Member, Fellowships Committee of the CRI, 1996 - present

Sigma Tau Foundation Lecturer, Rome, Italy, March 1997

UICC (Union Internationale Contre le cancer) Roll of Honor; inducted 1997

Who's Who in Medicine and Healthcare, 2000-2001

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## **Honors and Awards** (continued):

Founding Member, Academy of Cancer Immunology, New York Klaus Irmscher Lecture, Wistar Institute, Philadelphia, PA, 2000

### **Membership in Societies:**

American Association of Immunologists, American Association of Cancer Research International Interest Group in Biorecognition Technology, American Association for Advancement of Science, International Society for Vaccination (Charter member), Cell Stress Society (Life Member)

**Publications**: See Appendix 1

Patents: See Appendix 2

**Organized Conferences**: See Appendix 3

Invited Lectures and Talks: See Appendix 4

# Personal information:

Born Sultanpur, U.P., India to Babu Mangla Prasad and Tara Devi Srivastava. Married to Jasmine Shah. One child Vasishth Vidyadhar, born 1991.

#### **APPENDIX 1**

### **Publications**

## (Abstracts are not included)

## A. THESES:

- Srivastava, P.K.: Gymnosperms of *Glossopleris* flora. <u>M.Sc. Thesis</u>, University of Allahabad, Allahabad, India, 1975
- Srivastava, P.K. Cell surfaces during normal and abnormal growth: Purification of a tumor-associated antigen and a tumor-rejection antigen from a rat hepatoma. <u>Ph.D. Thesis</u>, Centre for Cellular and Molecular Biology, Osmania University, Hyderabad, India, 1983.

### **B. BOOKS**:

- Srivastava PK (ed.). Cellular Immunity to Cancer. ImmunoMethods Series, Academic Press, 1997.
- Srivastava PK Textbook of cancer immunology, John-Wiley, In preparation.
- Srivastava PK. (ed) Heat-Shock Protein-Immune System Interactions, Methods, Academic Press, 2002.

#### C. REVIEWS:

- Das MR, Parnaik VK and Srivastava PK. Molecular biology of malignant transformation. <u>Biochemical Reviews</u>. 51: 47-60, 1981.
- DeLeo AB and Srivastava PK. Cell surface antigens of chemically induced sarcomas of murine origin. <u>Cancer Surveys</u>. 41: 21-34, 1985.
- Srivastava PK and Old LJ. Individually distinct transplantation antigens of chemically induced mouse tumors. <u>Immunology Today</u>. 9: 78-83, 1988. Also see <u>Immunology Today</u>, 10:78 for response to a letter.
- Srivastava PK and Maki RG. Stress-Induced proteins as tumor antigens. <u>Current Topics in Microbiology and Immunology</u> 167: 109 124, 1991.
- Srivastava PK. Peptide binding heat shock proteins in the endoplasmic reticulum: Role in immune response to cancer and in antigen presentation. <u>Advances in Cancer Res.</u> 62:153–177, 1993.

## **C. REVIEWS: (CONTINUED):**

- Srivastava PK and Udono H. Heat shock proteins in immune response to cancer: The Fourth Paradigm. Experientia 50(11-12): 1054-1060, 1994.
- Blachere NE and Srivastava PK. Heat shock protein-based cancer vaccines and related thoughts on immunogenicity of human tumors. <u>Seminars in Immunology</u> 6: 349-355, 1995.
- Srivastava PK and Levey DL. Alterations in T cells of cancer-bearers: whence specificity? <u>Immunology Today</u>, 17 (8): 365-368, 1996.
- Srivastava PK, Ménoret A, Basu S, Binder R, McQuade K. Heat shock proteins come of age: Primitive functions acquire new roles in an adaptive world. <u>Immunity</u> (8): 657-665, 1998.
- Srivastava PK and Anderson K. Heat, heat shock, heat shock proteins and death: A central link in innate and adaptive immune responses, <u>Immunology Letters</u>, 74, 35–39, 2000.
- Basu S and Srivastava PK. Heat shock proteins: the fountainhead of innate and adaptive immune responses. <u>Cell Stress & Chaperones</u>, 5, (5), 443-451, 2000.
- Srivastava PK and Amato RJ. Heat shock proteins: The "Swiss Army Knife" Vaccines against cancers and infectious agents. <u>VACCINE</u>, 21;19(17-19):2590-7, 2001.
- Srivastava PK. Interaction of Heat shock proteins with peptides and antigen presenting cells: Chaperoning of the innate and adaptive immune responses.

  Annual Reviews of Immunology, Vol. 20, 395-425, 2002.
- Srivastava PK. Heat shock proteins in innate and adaptive immunity. <u>Nature Reviews</u> <u>Immunology</u>, Vol. 2, 185-194, 2002.

## **D. EDITORIALS and CRITICAL COMMENTARIES:**

- Srivastava, P.K. Protein tumor antigens. <u>Current Opinion in Immunology</u> 3:654 658, 1991.
- Srivastava PK. Heat shock proteins in specific immunotherapy of cancer. <u>Current Opinions in Immunology</u>, 6(5): 728-732, 1994.
- Janetzki S and Srivastava PK. Heat shock protein peptide complexes as therapeutic vaccines against human cancer. Guest Editorial, <u>Clinical Immunotherapeutics</u>, 3: 325-329, 1995.
- Srivastava PK. Do human cancers express shared protective antigens? or the necessity of remembrance of things past. <u>Semin Immunol</u> 8(5): 295-302., 1997.

## D. EDITORIALS and CRITICAL COMMENTARIES: (CONTINUED)

- Srivastava PK. Immunotherapy of human cancer: lessons from mice. <u>Nature Immunology</u>, 1 (5), 363-366, 2000.
- Li Z, Menoret A, Srivastava PK. Roles of heat-shock proteins in antigen presentation and cross presentation. <u>Current Opinions in Immunology</u>, 14(1), 45-51, 2002.

### **E. ORIGINAL PEER-REVIEWD PAPERS:**

- Srivastava, P.K., Harashima S. and Oshima, Y. Formation of two-spored asci interrupted sporulation in Saccharomyces cerevisiae. J. Gen. Microbiol. 123: 29-37, 1981.
- Harashima, S., Srivastava, P.K. and Oshima, Y. "Diad Analysis" for linkage studies in yeasts with poor viability. <u>J.Gen.Microbiol</u>.128: 2728-2737, 1982.
- Shashikant, C.S., Srivastava, P.K. and Das, M.R. Identification of a DNA polyme-rase associated with the skeletal framework of plasma membrane from a rat hepatoma. Biochem. Biophys. Res. Comm. 114: 571-578, 1983.
- Parnaik, V.K., Srivastava, P.K. and Das, M.R. Inhibition of AMV-reverse transcriptase by an RNA-binding protein from plasma membranes of normal and tumor cells. <u>J. Biosciences</u>. 5: 107-116, 1983.
- Srivastava, P.K. Harashima S. and Oshima, Y. Two-spored asci produced by interrupted sporulation in yeasts: A novel approach to linkage analysis in yeast. <u>Mol. Gen. Genetics</u> 191:165-166, 1983.
- Srivastava, P.K. and Das, M.R. Serologically unique surface antigen of a rat hepatoma is also its tumor-associated transplantation antigen. <u>Int. J. Cancer</u>. 33: 417-422, 1984.
- Srivastava, P.K. DeLeo, A.B. and Old, L.J. Tumor rejection antigens of chemically induced sarcomas of inbred mice. <u>Proc. Natl. Acad. Sci., USA</u> 83: 3407-3411, 1986.
- Palladino, M.A., Srivastava, P.K., Oettgen, H.F. and DeLeo, A.B. Expression of a shared tumor-specific antigen by two chemically induced BALB/c sarcomas. I. Detection by a cloned
  - cytotoxic T cell line. Cancer Research 47: 5074-5079, 1987.
- Srivastava, P.K., Chen, Y-T and Old, L.J. 5' structural analysis of genes encoding polymorphic antigens of chemically induced tumors. <u>Proc. Natl. Acad. Sci., U.S.A.</u> 84: 3807-3811, 1987.
- Srivastava, P.K., Kozak, C., and Old, L.J. Chromosomal localization of the gene encoding murine tumor rejection antigens gp96. <u>Immunogenetics</u> 28: 205-207, 1988.

### E. ORIGINAL PEER-REVIEWED PAPERS: (CONTINUED)

- Srivastava, P.K. and Old, L.J. Identification of the human homologue of the murine tumor rejection antigen gp96. <u>Cancer Research</u> 49: 1341-1343, 1989.
- Schadendorf, D. Yamaguchi, H., Old, L.J. and Srivastava, P.K. A novel hetermorphic human cell surface alloantigen gp60 defined by a human monoclonal antibody. <u>J. Immunology</u>, 142:1621-1625, 1989.
- Srivastava, P.K., Rao, W.S. and Bhargava, P.M. A bit of the cell wall is required for regeneration of complete cell walls in yeast. <u>Indian J. of Biochemistry & Biophysics</u> 25:601-604, 1988.
- Livingston, P.O., Ritter, G., Srivastava, P.K., Padavan. M., Calves, M. J., Oettgen, H. F. and Old, L.J. Characterization of IgG and IgM antibodies induced in melanoma patients by immunization with purified GM2 ganglioside. <u>Cancer Research</u>, 49: 7045 7050, 1989.
- Maki, R.G., Old, L.J. and Srivastava, P.K. Human Homologue of Murine Tumor Rejection Antigen Gp96: Analysis of Regulatory and Coding regions and Relationship to Stress-Induced Proteins. Proc. Natl. Acad. Sci. USA 87: 5658 5662,1990.
- Srivastava PK and Heike M. Tumor specific immunogenicity of stress induced proteins: Convergence of two evolutionary pathways of antigen presentation? Seminars in Immunology 3: 57-64, 1991.
- Maki RG, Eddy RL, Byers M, Shows TB, Srivastava PK. Mapping of the genes for human endoplasmic reticular heat shock protein gp96/grp94. Somatic Cell and Molecular Genetics 19, 73-81, 1993.
- Li Z, Srivastava PK. Tumor Rejection Antigen Gp96/ Grp94 is An ATPase: Implications for protein folding and antigen presentation. <u>EMBO Journal</u> 12:3143-3151, 1993.
- Udono H, Srivastava PK. Heat shock protein 70 associated peptides elicit specific cancer immunity . <u>J Exp. Medicine</u> 178, 1391-1396, 1993.
- Blachere NE, Udono H, Janetzki S, Li Z, Heike M, Srivastava PK: Heat shock protein vaccines against cancer. J. Immunotherapy 14, 352–356, 1993.
- Srivastava PK, Udono H, Blachere NE, Li Z. Heat shock proteins transfer peptides during antigen processing and CTL priming. <u>Immunogenetics</u> 39, 93-98, 1994
- Udono H, Levey DL and Srivastava PK. Cellular requirements for tumor specific immunity elicited by heat shock proteins: Tumor rejection antigen gp96 primes CD8+ T cells in vivo. <a href="Proc. Natl. Acad. Sci. USA">Proc. Natl. Acad. Sci. USA</a> 91, 3077–3081, 1994.
- Heike M, Blachere NE, Wolfel T, Meyer zum Buschenfeld KH, Storkel S and Srivastava PK. Membranes activate tumor and virus-specific cytotoxic T lymphocytes in vivo and stimulate tumor-specific lymphocytes in vitro: Implications for vaccination. J.Immunotherapy 15,165 174, 1994.

### E. ORIGINAL PEER-REVIEWED PAPERS: (CONTINUED)

- Heike M, Blachere N, Srivastava PK. Protective cellular immunity against a spontaneous mammary carcinoma from ras transgenic mice. <u>Immunobiology</u>. 190, 411-423, 1994.
- Udono H, Srivastava PK. Relative immunogenicities of Heat Shock Proteins gp96, hsp90 and hsp70 against chemically induced tumors <u>Journal of Immunology</u> 152, 5398-5403, 1994.
- Srivastava P.K. Endo-b-D glucuronidase (heparanse) activity of heat shock protein / tumor rejection antigen gp96. The Biochemical Journal 301, 919-919, 1994.
- Anderson SL, Sheng T, Lou J, Xing L, Blachere NE, Srivastava PK, Rubin BY. The endoplasmic reticular heat shock protein gp96 is transcriptionally up-regulated in interferon-treated cells. J. Experimental Medicine, 180, 1565 1569, 1994.
- Feldweg AF, Srivastava PK. Molecular heterogeneity of the tumor rejection antigen / heat shock protein gp96. <a href="International J. Cancer">International J. Cancer</a> 63, 310–314, 1995.
- Levey D, Srivastava PK. T cells from tumor bearing mice express normal levels of *lck*, *fyn*, ZAP70 and CD3 and show normal allospecific and antigen-specific reactivity. <u>J. Exp. Medicine</u> 182, 1029-1036, 1995.
- Suto R, Srivastava PK. A mechanism for the specific immunogenicity of heat shock protein chaperoned peptides. <u>Science</u> 269, 1585-1588, 1995.
- Altmeyer A, Maki RG, Feldweg AF, Heike M, Masur S, Srivastava PK. Cell surface localization of gp96, a -KDEL containing heat shock protein of the lumen of the endoplasmic reticulum. <u>Intl. Journal of Cancer</u>, 69, 340-349, 1996.
- Blachere NE, Li Z, Chandawarkar RY, Suto R, Jaikaria NS, Basu S, Udono H and Srivastava PK. Gp96-peptide complexes, reconstituted in vitro, elicit, peptide-specific immunity. <u>J. Experimental Medicine</u>, 186(8): 1315-1322, 1997.
- Peng P, Ménoret A, Srivastava PK. Purification of hsp70 molecules with associated antigenic peptides. J. Immunological Methods, 204,13-20 1997.
- Tamura Y, Peng P, Liu K, Daou M, Srivastava PK. Immunotherapy of metastatic lung cancer by heat shock protein preparations. <u>Science</u> 278(5335):117-120,1997.
- Janetzki S, Blachere NE, Srivastava PK. Generation of tumor-specific CTLs and memory T cells by vaccination with tumor-derived heat shock protein preparation. <u>J. Immunotherapy</u>, 21 (4): 269-276, 1998.
- Chandawarkar RY, Wagh MS, Srivastava PK. The dual nature of specific immunological activity of tumor-derived gp96 preparations. <u>J. Exp. Med.</u>, 189 (9): 1437-1442, 1999.

### E. ORIGINAL PEER-REVIEWED PAPERS: (CONTINUED)

- Basu S, Srivastava PK. Calreticulin, a peptide-binding chaperone of the endoplasmic reticulum, elicits tumor- and peptide-specific immunity. <u>J. Exp. Med.</u> 189, (5): 797-802, 1999.
- Ménoret A, Srivastava PK. Association of peptides with heat shock protein gp96 occurs in vivo and not after cell lysis. <u>Biochemical & Biophysical Research Communications</u>, 262, 813-818, 1999.
- Yedavelli, SPK, Guo L, Daou ME, Srivastava, PK. Preventive and therapeutic effect of tumor derived heat shock protein, gp96, in an experimental prostate cancer model. Int. J. Molecular Med., 4, 243-248, 1999.
- Binder RJ, Han DK, Srivastava PK. CD91 is a receptor for heat shock protein gp96. Nature Immunology, 1 (2), 151-155, 2000.
- Janetzki S, Polla D, Rosenhauer V, Lochs H, Srivastava PK. Immunization of cancer patients with autologous cancer-derived heat shock protein gp96: A pilot study. <u>Intl. Journal of Cancer</u>, 88, 232-238, 2000.
- Binder RJ, Harris M, Ménoret A, Srivastava PK. Saturation, competition and specificity in interaction of heat shock proteins gp96, hsp90 and hsp70 with CD11b+ cells. J. Immunology, 165:2582-2587, 2000.
- Basu S, Binder RJ, Suto R, Anderson KM, Srivastava PK. Necrotic but not apoptotic cell death releases heat shock proteins, which deliver maturation signal to dendritic cells and activate the NFκB pathway. <u>International Immunology</u>, 12 (11), 1539–1546, 2000.
- Binder RJ, Anderson KM, Basu S, Srivastava PK. Heat shock protein gp96 induces maturation and migration of CD11c+ cells *in vivo*. <u>Journal of Immunology-Cutting Edge</u>,165:6029-6035, 2000.
- Ménoret A, Chandawarkar R, Srivastava PK. Natural autoantibodies against heat shock proteins hsp70 and gp6: implications for immunotherapy using heat shock proteins. Immunology, 101, 364-370, 2000.

### E. ORIGINAL PEER-REVIEWED PAPERS: (CONTINUED)

- Robert J, Ménoret A, Basu S, Cohen N, Srivastava PK. Phylogenetic conservation of the molecular and immunological properties of the chaperones gp96 and hsp70. <u>European Journal of Immunology</u>, 31, (1), 186-195, 2001.
- Matsutake T, Srivastava PK. The immunoprotective MHC II epitope of a chemically-induced tumor harbors a unique mutation in a ribosomal protein. <u>Proc. Natl. Acad. Sci</u>, 98: 3992-3997, 2001.
- Levey D, Udono H, Heike M, Srivastava PK. Identification of a tumor-associated contact

- dependent activity which reversibly down regulates Tcells. <u>Cancer Immunity</u> (www.cancerimmunity.org) 1:5, 2001.
- Binder RJ, Blachere NE, Srivastava PK. Heat shock protein-peptides but not free peptides introduced into the cytosol are presented efficiently by MHC I molecules. <u>Journal of Biological Chemistry</u>, 276: 17163-17171, 2001.
- Binder, RJ, Karimeddini D, Srivastava PK. Adjuvanticity of  $\alpha_2$ -macroglobulin, an independent ligand for the heat shock protein receptor CD91. <u>Journal of Immunology</u>, 166: 4968-4972, 2001.
- Basu S, Binder RJ, Srivastava PK. CD91 is a common receptor for heat shock proteins gp96, hsp90, hsp70 and calreticulin, <u>Immunity</u>, 14, 303-313, 2001.
- Ménoret A, Li Z, Niswonger ML, Altmeyer A, Srivastava PK. An endoplasmic reticulum protein implicated in chaperoning peptides to major histocompatibility of class I is an aminopeptidase. <u>Journal of Biological Chemistry</u>, 276: 33313-33318, 2001.
- Somersan S, Larsson M, Fonteneau JF, Basu S, Srivastava PK, and Bhardwaj N. Primary tumor tissue lysates are enriched in heat shock proteins and induce the maturation of human dendritic cells. J. of Immunology, 167: 4844-4852, 2001.
- Panjwani NN, Popova L, Srivastava PK. Heat shock proteins gp96 and hsp70 activate release of Nitric Oxide by antigen presenting cells. <u>J. of Immunology</u>, 168 (6), 2997–3003, 2002.
- Makki A, Weidt G, Blachere N, LeFrancois L, and Srivastava PK. Abrogation of tumore protection by immunization against a dominant tumor antigen. <u>Cancer Immunity</u>, Vol. 2, pg. 4, 2002.
- Belli R, Testori A, Rivoltini L, Maio M, Andreola G, Sertoli MR, Gallino G, Piris A, Cattelan A, Lassari I, Carrabba M, Scita G, Santantonio C, Pilla L, Tragni G, Lombardo C, Arienti F, Marchianò A, Bertolini F, Cova A, Lamaj E, Ascani L, Camerini R, Corsi M, Cascinelli N, Lewis JJ, Srivastava PK, Parmiani G. Vaccination of metastatic melanoma patients with autologous Tumor-derived heat shock protein gp96-peptide complexes. J. Clinical Oncology, 20 (20): 4169-4180, 2002.
- Binder RJ, Kumar A, Srivastava PK. Naturally formed or artificially reconstituted non-covalent  $\alpha 2$ -macroglobulin-peptide complexes elicit CD91-dependent cellular immunity. <u>Cancer Immunity</u>, Vol. 2 pg 16, 2002.
- Nemani PV, Srivastava PK, Rudrabhatla RS, Kwang KS, Huang S, Sukumaran SK. Cloning and expression of Escherichia Coli K1 outer membrane protein a receptor, a gp96 homologue. <u>Infection and Immunity</u>, In press, 2003.
- Stebbing J, Gazzard B, Kim L, Portsmouth S, Wildfire A, Morlese J, Shaunak S, Nelson M, Bower M,

- Srivastava P, Gotch F, Patterson S. CD91, the heat shock protein receptor is up-regulated on HIV-1-infected "true" long term non-progressors. DOI 10.1182/blood-2002-11-3353.
- Matsutake T, Srivastava PK. High efficiency, CD91-medicated re-presentation of gp96-chaperoned peptides by MHC II molecules. J. Exp. Med, submitted 2002.
- Srivastava PK. Hypothesis: Controlled necrosis as a tool for immunotherapy of human cancer. Lancet, submitted 2002.
- Basu S, Srivastava PK. Fever-like temperature induces maturation of dendritic cells through induction of hsp90. <u>Science</u>, submitted 2002.

## F. BOOK CHAPTERS (SELECTED LIST):

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- Schadendorf D, Yamaguchi H, Old LJ, and Srivastava, PK. Biochemical analysis of a novel melanoma cell surface antigen defined by a human monoclonal antibody. <u>Human Tumor Antigens and Specific Tumor Therapy.</u> (eds. R.S. Metzgar and M. Mitchell) Alan R. Liss, Inc., NY 99: 137-146, 1989.
- Srivastava PK. Tumor Specific Antigens and their Homology to Stress-induced Proteins. Molecular Mechanisms of Immune Regulation (eds. R.Srivastava, B.P.Ram and P.Tyle), (In Press), VCH Publishers, NY, 1990.
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- Srivastava PK. Heat shock proteins as priming agents: Implications for cancer immunotherapy. <u>Tumor Immunology</u>, (eds. M. Browning and A.G.Dalgleish), <u>Cambridge University Press</u>, 1994.
- Srivastava PK. Purification of heat shock proteins for use in vaccination against cancers and infectious diseases. <u>Manual of Immunological Methods</u> (ed. H.G. Rammensee), 1996.

#### F. BOOK CHAPTERS (SELECTED LIST): (CONTINUED)

Srivastava PK. Purification of heat shock protein-peptide complexes for use in

- vaccination against cancers and intracellular pathogens. <u>Methods: A companion to methods in enzymology</u>, 12, 1997.
- Srivastava PK. Stress proteins, Chapter 21: HSP's and Cancer. <u>Handbook of Experimental Pharmacology</u>, (eds. D.S. Latchman), Springer, 1997.
- Srivastava PK. Heat-Shock-Protein-Based Vaccines against Cancers and Intracellular Infections: Immunogenicity of Cancers. <u>Symposium in Immunology VI</u>, Springer-Verlag Berlin Heidelberg, New York, (eds. M.M. Eibl, C. Huber, H. H. Peter, U. Wahn) 1997.
- Srivastava, PK. Heat shock protein-peptide interaction as the basis for a new generation of vaccines against cancers and infectious diseases. <u>Journal of Biosciences</u>. (ed. S.C. Lakhotia), The Indian Academy of Sciences, 1998.
- Ménoret A and Srivastava PK. The cancer micro-environment and its impact on immune response to cancer. <u>Molecular approaches to tumor immunotherapy</u>, Chapter 5: 108-120. New-York, (ed. Liu Y) 1998.
- Srivastava PK. Heat Shock Protein-Based Novel Immunotherapies. Prous Science, <u>Drug News and Perspectives</u>, 2000.
- Srivastava PK and Jaikaria N. Methods of purification of heat shock protein-peptide complexes for use as vaccines against cancers and infectious diseases. <u>Methods in Molecular Biology</u>, 151, 2001.
- Robert J, Ménoret A, Srivastava PK, Cohen N. Immunological Properties of Heat Shock Proteins are Phylogenetically Conserved. <u>Advances in experimental medicine and biology</u>, Kluwer Academic/Plenum Publishers, volume 484, (eds. Beck et al) 2001.
- Srivastava PK, Kumar S, and Mendonca C. Principles and practice of the use of heat shock protein-peptide complexes for immunotherapy of human cancer. <u>Biologic Therapy of Cancer Updates</u>, Lippincott Williams & Wilkins, Vol. 2 No. 3, 2001.
- Basu S, Srivastava PK. Heat shock protein in immune response. HSP and Inflammation,

#### APPENDIX 2

#### **Patents**

- U.S. Patent no. 5,750,119: Immunotherapeutic stress protein-peptide complexes against cancer. Issued May 12, 1998
- **U.S. Patent no. 5,830,464**: Compositions and methods for the treatment and growth inhibition of cancer using heat shock/stress protein-peptide complexes in combination with adoptive immunotherapy. Issued November 3,1998
- **U.S. Patent no. 5,837,251**: Compositions and methods using complexes of heat shock proteins and antigenic molecules for the treatment and prevention of neoplastic dis. Issued Nov. 3, 1998
- U.S. Patent no. 5,935,576: Compositions and methods for the treatment and prevention of neoplastic diseases using heat shock proteins complexed with exogenous antigens. Issued August 10, 1999
- **U.S. Patent no. 5,948,646**: Methods for preparation of vaccines against cancer comprising heat shock protein-peptide complexes. Issued September 7, 1999
- **U.S. Patent no. 5,961,979**: Stress protein-peptide complexes as prophylactic and therapeutic vaccines against intracellular pathogens. Issued October 5, 1999
- U.S. Patent no. 5,985,270: Adoptive immunotherapy using macrophages sensitized with heat shock protein-epitope complexes. Issued November 16,1999
- **U.S. Patent no. 5,997,873**: Method of preparation of heat shock protein 70-peptide complexes. Issued December 7, 1999
- U.S. Patent no. 6,007,821: Method and compositions for the treatment of autoimmune disease using heat shock proteins. Issued December 28,1999
- U.S. Patent no. 6,017,540: Prevention and reatment of primary and metastatic neoplastic diseases and infectious dis. with heatshock/stress protein-peptide complexes. Issued Jan. 25, 2000
- U.S. Patent no.6,017,544. Composition comprising immunogenic stress protein-peptide complexes against cancer and a cytokine. Issued January 25, 2000
- U.S. Patent no.6,030,618:Therapeutic and prophylactic methods using heat shock proteins. Issued February 29, 2000
- U.S. Patent no. 6,048,530: Stress protein-peptide complexes as prophylactic and therapeutic vaccines against intracellular pathogens. Issued April 11, 2000
- U.S. Patent no.6,130,087:Methods for generating cytotoxic T cells in vitro.Issued October 10, 2000

- U.S. Patent no. 6,136,315: Compositions and methods using complexes of heat shock protein 70 and antigenic molecules for the treatment and prevention of neoplastic diseases. Issued October 24, 2000
- U.S. Patent no. 6,139,841: Compositions and methods using complexes of heat shock protein 70 and antigenic molecules for the treatment and prevention of infectious diseases. Issued October 31, 2000
- **U.S. Patent no. 6,143,299**: Compositions and methods using complexes of heat shock protein gp96 and antigenic molecules for the treatment and prevention of infectious diseases. Issued November 7, 2000
- U.S. Patent no. 6,156,302: Adoptive immunotherapy using macrophages sensitized with heat shock protein-epitope complexes. Issued December 5, 2000
- U.S. Patent no. 6,162,436:Compositions and methods using complexes of heat shock protein 90 and antigenic molecules for the treatment and prevention of neoplastic diseases. Issued December 19, 2000
- **U.S. Patent no. 6,168,793**: Heat shock protein 70 preparations in vaccination against cancer and infectious disease. Issued January 2, 2001.
- **U.S. Patent no. 6,187,312**: Compositions and methods using complexes of heat shock protein 90 and antigenic molecules for the treatment and prevention of infectious diseases. Issued: February 13, 2001
- U.S. Patent no. 6,322,790: Compositions and methods for eliciting an immune response using heat shock/stress protein-peptide complexes in combination with adoptive immunotherapy. Issued: November 27, 2001
- U.S. Patent no. 6,375,953: Treatment of infectious diseases with hsp70-peptide complexes. Issued: April 23, 2002
- U.S. Patent no. 6,379,672: Prevention of infectious diseases with gp96-peptide complexes. Issued: April 30, 2002
- U.S. Patent no. 6,383,491: Prevention of infectious diseases with hsp90-peptide complexes. Issued: May 7, 2002
- **U.S. Patent no. 6,383,492**: Treatment of infectious diseases with gp96-peptide complexes. Issued: May 7, 2002
- U.S. Patent no. 6,383,493: Methods and compositions for eliciting an immune response with hsp70-peptide complexes. Issued: May 7, 2002
- U.S. Patent no. 6,383,494: Methods and compositions for eliciting an immune response with gp96-peptide complexes. Issued: May 7, 2002

In addition, over 50 applications are pending in the U.S.

#### APPENDIX 3

# Major Conferences Organized

(not including sessions within conferences)

I International Conference on Heat Shock Proteins in Immune Response, October 12-15, 1998, Farmington, CT

Il International Conference on Heat Shock Proteins in Immune Response, October 8–12, 2000, Farmington, CT

Winter School in Immunology, Kovalam, Kerala, India, February 5-9, 2001, Organized by Cancer Research Institute, New York

III International Conference on Heat Shock Proteins in Immune Response, October 6-9, 2002, Farmington, CT

Il Winter School in Immunology, Kovalam, Kerala, India, December 16-20, 2002 Organized by Cancer Research Institute, New York

#### **APPENDIX 4**

#### **Invited Lectures**

1st International Conference on Basis & Clinical Immunogenomics, Budapest, Hungary, October 3-7, 2004 Johnson & Johnson Immune Modulation Symposium Malvern, Philadelphia, Pennsylvania, October 16, 2003 1st Annual European Conference: Perspectives in Melanoma Management, Amsterdam, The Netherlands October 9-11.

2003

CANCER VACCINES 2003-Cancer and HIV Vaccines: Shared Lessons, Manhatten, NY, October 1-3, 2003 First International Congress on Stress Responses in Biology and Medicine, Quebec City, Canada, September 10-14, 2003

International Summer School on Cancer Immunology and Immunotherapy, Ionian Village Peloponese, Greece, September

8 - 13,2003

First Annual Melanoma Research Congress, Philadelphia, PA, June 21-24, 2003

European Society of Hyperthermic Oncology ESHO2003, Munich, Germany, June 4-7, 2003

International Society for Cancer Gene Therapy Meeting, Singapore, 26th & 27th April 2003

ASCO Conference, 39th Annual Meeting, Chicago, IL, May 31-June 3, 2003

"CASC" Seminar - Rupert Sheldrake, Uconn, Farmington, CT, March 7, 2003

5th Annual Walker's Cay Collogquium on Cancer Vaccines and Immunotherapy, Abaco, Bahamas, March 5-8, 2003

Keystone Symposium, Basic Aspects of Tumor Immunology, February 17-23, 2003

American Association of Immunologists and NCI (NIH), "Research Opportunities in Cancer Immunology", Bethesda, MD,

January 22-24, 2003

Winter School in Immunology, Kovalam, Kerala, India, December 16-20, 2002

BioSecurity, 2002, Las Vegas, MGM Grand, NV, November 18-21, 2002

New England Immunology Conference (NEIC), Woods Hole, MA, November 16-17, 2002

12th New England Regional Workshop on Autoimmune Diabetes Mellitus, Woods Hole, MA, November 15, 2002

UConn Immunology Graduate Retreat, Avon Old Farms Hotel, Avon, CT, November 15, 2002

Brazilian Society of Immunology (SBI), Salvador, Brazil, October 20-23, 2002

AACR Meeting on Cancer Prevention, New York City, NY, October 14-18, 2002

EMBO, "The biology of heat shock proteins and molecular chaperones", Warsaw, Poland, September 25 –29, 2002

HSP90 Workshop, Arolla, Swiss Alps, Switzerland, August 24-28, 2002

Upenn Immunology Training Grant Retreat, Philadelphia, PA, August 1, 2002

Eurocancer 2002, Paris France, June 4-6, 2002

ASCO, Orlando, FL May 17, 2002

Annual Conference on Vaccine Research, Baltimore, MD, May 6-8, 2002

DARPA 2002 UPC PI Conference, Lexington, KY, April 6-10, 2002

World Drug Discovery Summit, Copenhagen, Denmark, April 3-5, 2002

2002 Keystone Symposia, Keystone, Colorado, February 25-March 3, 2002

Australasian Society for Immunology Conference, Canberra, Australia, 2-5 December, 2001

III International Workshop on Molecular Biology of Stress Responses, Mendoza, Argentina, October 9-13, 2001

IV "Anton Dohrn" Workshop, "New Perspectives in Tunicate Biology", Ischia, Italy, September 29 - October 2, 2001

British Society of Histocompatibility and Immunogenetics, St John's College, Cambridge, London, September 26-28,2001

"CASC" Seminar, Uconn, Farmington, CT, September 10, 2001

8thCGGH Symposium "New Paradigms of Molecular Chaperones in the Postgenome Era", August 6-9, 2001, Sapporo Japan

11th International Congress of Immunology, "Molecular interactions in infection and immunity", Stockholm, Sweden, July 22–28, 2001

International Society of Cancer Gene Therapy, IVth Mtg., London, July 12-13, 2001

#### Invited Lectures (continued):

Perspectives in Melanoma V: Scientific and Clinical Foundation for Future Progress, The University of Pittsburgh, June

7-8, 2001, Pittsburgh, PA

Annual meeting of the "Hinterzartener Kreis" for Cancer Research, Cadenabbia/Como, Italy, May 10-13, 2001

7th National Symposium: Basic Aspects of Vaccines, Baltimore, MD, May 2-4, 2001

Winter School in Immunology, Kovalam, Kerala, India, February 8-13,2001

Keystone Symposia on Molecular and Cellular Biology, "Interfaces between innate and adaptive immunity, Keystone, CO, January 22-27, 2001

The British Society for Immunology Congress 2000, "Heat shock proteins: The fountainhead of innate and adaptive immune responses", London, December 5-8, 2000

University of London, Guy's King's & St. Thomas' Medical School, Annual Immunobiology Research Day, London, December 4, 2000

Dana Farber Cancer Institute, "International Symposium on Heat Shock Proteins in Biology and Medicine, Woods Hole, MA, November 6-8, 2000

II International Conf. on Heat Shock Proteins in Immune Response, Farmington, CT, October 8-12, 2000 Cancer Research Institute, Cancer Vaccines 2000, New York City, NY, October 2-4, 2000

EFIS 2000, European Federation of Immunological Societies, 14th European Immunology Meeting, Poznan, Poland, September 23-27, 2000

EFIS 2000, Heat Shock Proteins: Immune, Stress response and apoptosis, Gdansk, Poland, September 20–22, 2000

4th EFIS Tatra Immunology Conference, "Molecular Determinants of T Cell Immunity", Tatra Mountains, Slovakia, September 2-7, 2000

Proceedings of Millennium Second World Congress on Vaccines and Immunization, Liege, Belgium, August 29-September 2, 2000

University of CT Cancer Symposium, University of CT, Farmington, CT, May 11, 2000

DARPA 2000 BWD UPC/AD Conference, Fort Lauderdale, FL, January 30, 2000 - February 1, 2000

Annual Meeting of the Japanese Society for Immunology, Nagasaki University, Japan, November 28 – December 4, 1999

1st Annual Pathogenesis Symposium, University of CT, Farmington, CT, November 4, 1999

Drug Discovery for 21st Century, Worcester, MA, October 28, 1999

Cancer Research Institute, "Cancer Immunosurveillance", New York City, NY, October 4-6, 1999 1999 Annual Meeting, New England Surgical Society, Newport, RI, September 24-26, 1999

NIH - El Study Section, Washington DC, June 17-18, 1999

Symposium of the SFB 432, "Immunological Mechanisms of Tumor Defense", Johannes Gutenberg-Universitat Mainz Klinikum, Mainz, Germany, February 26-27, 1999

Clinical Evaluation of 2nd Generation Cancer Vaccines, London, UK, February 24-25, 1999

DARPA Conference for Unconventional Pathogen Countermeasures, Monterey, CA, February 8-12, 1999

NMHCC Bio/Technology Division's Conference, Washington, DC, November 19-20, 1998

Robert Steel Foundation International Symposium 1998, Memorial Sloan-Kettering, "New Strategies for Stimulating and Augmenting Host Resistance to Malignant Cells", New York, NY, October 21–23, 1998

Cancer Research Institute Symposium, Cancer Vaccine Week 1998, New York City, New York, October 5-9,1998

AACR "Cellular Targets of Viral Carcinogenesis", Dana Point, California, September 24-28, 1998 Invited Lectures (continued):

National Cancer Institute, "Mechanisms of Immune Evasion by Tumors", Washington, DC, September 1-2, 1998

American Cancer Society 13th Annual Excalibur Round Table, Greenwich, CT August 13-14, 1998 Pfizer Mini-Symposium, "Novel Methods for Enhancement of Immune Responses to Peptides/Proteins", Groton, CT, July 24, 1998

2<sup>nd</sup> International Cancer Immunotherapy and Gene Therapy Conference, NMHCC Bio/Technology Conference Division, Waltham, Massachusetts, CT, June 15–16, 1998

Molecular Chaperones in Biology & Medicine, Mosbach, Germany, April 2-4, 1998

Symposium on Graft-versus-Host & Graft-versus-Leukemia Reactions 1998, Munich, Germany, March 28, 1998

Miami Nature Biotechnology Winter Symposia, Miami, FL, February 7-11, 1998

Immunological Attacks on Cancer, Cold Spring Harbor Laboratory, NY, October 19-22, 1997

International Workshop on Molecular Biology of Stress Response, Benares Hindu University, Varanasi, India, October 12-17, 1997

1997 Fourth Annual CapCURE Scientific Retreat, Lake Tahoe, Nevada, September 4-7, 1997

Molecular Virology and Vaccinology meeting of Drug Information Association, April 9-12, 1997, Newport Beach, California

UCLA symposium on "Cancer Immunity and Immunotherapy", Copper Mountain, Colorado, February 1997 Annual Meeting, American Society for Histocompatibility and Immunogenetics, San Diego, California, December 1996

Speaker and Organizing Committee member, Cancer Vaccines 1996, Cancer Research Institute, New York, October 1996

Plenary Speaker, Annual Meeting of German Society of Immunology, Hamburg, Germany, September 1996 European Immunology (ENII) meeting, Les Embiez, France, May 1996

Cancer Vaccines Conference (Henry Stewart Conference Studies), London, England, May 1996

Symposium in Immunology VI, Tumor Immunology, Organized by Immuno Pharma, Prague, Czechoslovakia, March 1996

European Heat Shock Meeting, Berlin, Germany, February-March 1996

Plenary Speaker, Annual Meeting of Canadian Society of Immunology, Montreal, Canada, March 1996

Plenary speaker, Annual Meeting of British Society of Histocompatibility and Immunogenetics, Liverpool, England, February 1996

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Symposium speaker on cancer Vaccines, Annual Meeting, American Association of Advancement of Sciences, Baltimore, MD, February 1996

First International Workshop on Antigen Presentation, Oxnard, California, November 1995

Nobel Forum conference on Cancer Immunity, Stockholm, Sweden, September 21-23, 1995

Symposium speaker, IX International Congress of Immunology, 1995, San Francisco, July 1995

II International Conference on Engineered Vaccines against Cancer and AIDS, San Francisco, March 3-5, 1995

Deutsches Forschungsgemeinschaft, DFG workshop on Immunological aspects of heat shock proteins and heat shock response, December 1994

International Conference on "Cancer Vaccines", Cancer Research Inst., New York, October, 1994.

Distinguished Lecturer, University of Alabama, September 1994

IBC Conference on "Therapeutic Opportunities for Heat Shock Proteins", Cambridge, MA; September 29-30,1994

#### **Invited Lectures (continued):**

Johns Hopkins Oncology Center course on "New Approaches to Cancer Therapy", Baltimore, May 16, 1994 AACR Annual meeting, Symposium on "New Approaches to Cancer Immunotherapy", San Francisco, April 1994

Cold Spring Harbor Meeting on the 'Biology of heat shock proteins and molecular chaperones', May 4-8, 1994

German Society for Cell Biology meeting, Lbeck, Germany, March 1994

US - Japan Bionational Immunology Symposium, Bethesda, MD January 1994

Mildred Scheel Lecturer in the conference "Hyperthermia in Clinical Oncology", Ludwig Maximilians, University of Munich, Germany, November 1993

FASEB Conference on Tumor Immunotherapy, Vermont, June 9, 1993,

Workshop on "Heat shock in Multiple Sclerosis and other disorders", Galicia, Spain, MS Society, April 2-5, 1993

UCLA symposium on Cellular Immunity to Cancer, Taos, New Mexico, March 1993

American Association of Immunologists meeting, Anaheim, CA, Session on Tumor Antigens, April 1992

Plenary speaker, Annual Meeting of Austrian Society for Allergology and Immunology, Graz, May 1991

Chairman, Symposium on "Nature of Tumor Antigens" at the American Association of Immunologists meeting, New Orleans, Lousiana, June 1990

Special AACR symposium on 'Molecular Basis of Tumor Immunology', Virginia, May 20-22 1990

UCLA Symposium on 'T Cell Immunity to Cancers' January - February 1990

VII Int'l Congress of Immunology, Berlin, Workshop on Tumor Antigens, 1989

NIH workshop on 'Influence of MHC Expression on Tumor Growth' Annapolis, Maryland, 1988

UCLA Symposium on 'Human Tumor Antigens and Specific Tumor Therapy', 1988

Cancer Research Institute workshop on 'Recent Advances in Human Melanoma Research'; New York, 1987

#### Also gave invited talks at:

Duke University, Emory University, New York University, Cornell University Medical School, Johns Hopkins University, German Cancer Research Center (Deutsches Krebsforschungszentrum), Heidelberg, Yale University, Sloan-Kettering Institute, University of Mainz (Germany), Max - Planck Institut at Freiburg, Germany, Ludwig Institute for Cancer Research, Stockholm, Sweden, Netherlands Cancer Institute,

Amsterdam, Holland, Center for Cellular and Molecular Biology, Hyderabad, India, Albert Einstein School of Medicine, New York, National Cancer Institute, NIH, The Jackson laboratory, Bar Harbor, Chiron Corporation, University of Texas, Houston, TX., Washington University, St. Louis, MO., MD Anderson Cancer Center, Houston, TX., Boehringer-Manheim, Penzburg, Germany, University of Connecticut, Farmington, Sigma-Tau Company, Rome, Italy, University of Lund, Sweden; Stanford University, Palo Alto, University of California at Berkley, University of Pennsylvania, Pennsylvania State University, Oxford University, England; Michigan Cancer Foundation, Detroit, Michigan; Mayo Clinic, Rochester, MN; University of Southern California; University of California at Norris; University of Tennessee, Cornell University, New York; Massachusetts General, Harvard Medical School, New York; Karmanos Cancer Institute, Detroit, Michigan; Boehringer Ingelheim, Ridgefield, Connecticut; University of Rochester, Rochester, New York; Roswell Park Cancer Inst., Buffalo, NY; Entremed Inc. , Rockville, Maryland; Elan Pharmaceuicals, South San Francisco, California; University of Connecticut, Storrs, Connecticut; Stazione Zoologica Anton Dohrn, Naples, Italy; Fox Chase Cancer Ctr, Pennsylvania; Cleveland Ohio State Univ., Ohio; UCSF Cancer Ctr, San Francisco, California; Rockefeller University Hospital, New York City, NY; Wistar Institute, Philadelphia, PA; Case Western. Cleveland Ohio; University of Leeds, London; NCBS, Bombay, India; Baylor University, Houston, TX; Indian Institute of Science Bangalore, India; University of CT, CASC Series, Farmington, CT; University of Michigan, Ann Arbor, MI; Sequella Foundation, Rockville, MD; Johns Hopkins Univ, Baltimore MD; PTC Therapeutics, Plainfield, NJ; UMDNJ-New Jersey Medical Center, NJ; Medical College of Wisconsin, Milwaukee; University of Pittsburgh Cancer Institute, PA; Indiana University School of Medicine, Indianapolis, IN; Scripps Research Institute, La Jolla, CA; University of Toronto, Ontario, Canada;